Innovations in Risk Assessment: Improving Data Resources

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This session discusses an interagency-shared data infrastructure to support the development of innovative approaches in risk assessment using data from existing studies and from the developing fields of genomics, proteomics, metabanomics, and systems biology.

- The same set of studies and basic data are used to develop assessments and reference values for a particular chemical, regardless of which agency is performing the assessment. Developing these assessments takes significant time and resources. A shared resource that includes the literature search results supported by detailed data for key studies would benefit all agencies that perform these activities and expedite assessments.
- Risk assessments conducted by regulatory agencies, especially EPA, are increasingly applying more scientifically based analytical tools. The use of physiologically based models better integrate more information on chemical effects on biological systems. Other innovative approaches (benchmark dose, categorical regression, meta-analysis) are being applied that require more detail about each study than were traditionally required as the basis for an assessment. These new, more data-intense approaches benefit from having readily available, relevant data.
- Increasing concern about concurrent exposures (e.g., chemical mixtures and multiple pathways for single chemicals) requires more detailed evaluation of toxicological data for regulated chemicals. Capabilities to organize and analyze data from studies in different ways will enhance these types of assessments.
- Developing rapid risk assessments (e.g., Homeland Security) requires ready availability of detailed data.
- A large influx of new types of hazard and response information is coming from the Computational Toxicology program, requiring a new data infrastructure to be in place in order to effectively make use of that information.

The discussions in this session will cover how the conduct of risk assessment is moving to using more detailed data and how detailed scientific data are increasingly being required for and used in regulatory decision making. How information can effectively be shared, what information will need to be shared, and the development of a data infrastructure designed for the developing "omics" technologies will be reviewed and discussed. An open discussion will conclude the session.

Speakers:

- George Woodall, PhD (EPA/ORD/NCEA) - Moderator and Session Overview (15 minutes)
- Roy Smith, PhD (EPA/OAR/OAQPS) - Use of Scientific Data in Regulatory Decision Processes (20 minutes)
- Ann Richard, PhD (EPA/ORD/NHEERL) - Distributed Database Approach to Sharing Data (20 minutes)
- Robert Kavlock, PhD (EPA/ORD/NHEERL) - Need for Effective Information Dissemination in Computational Toxicology (20 minutes)
- Michael Waters, PhD (NIEHS) - The Chemical Effects in Biological Systems (CEBS) Infobase (20 minutes)
- Open Discussion (25 minutes)